



DSCI 6007-Final Project – Showcase

Forecasting Inflation: LSTM Neural Network

Team 2

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DSCI 6007 Final Project Presentation Plan of Action

- Team Introduction
- Business Scenario Overview
- Solution Overview
- Solution Architecture Diagram
- Lessons Learned
- Demonstration



TEAM 2



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Vikas Vejendla



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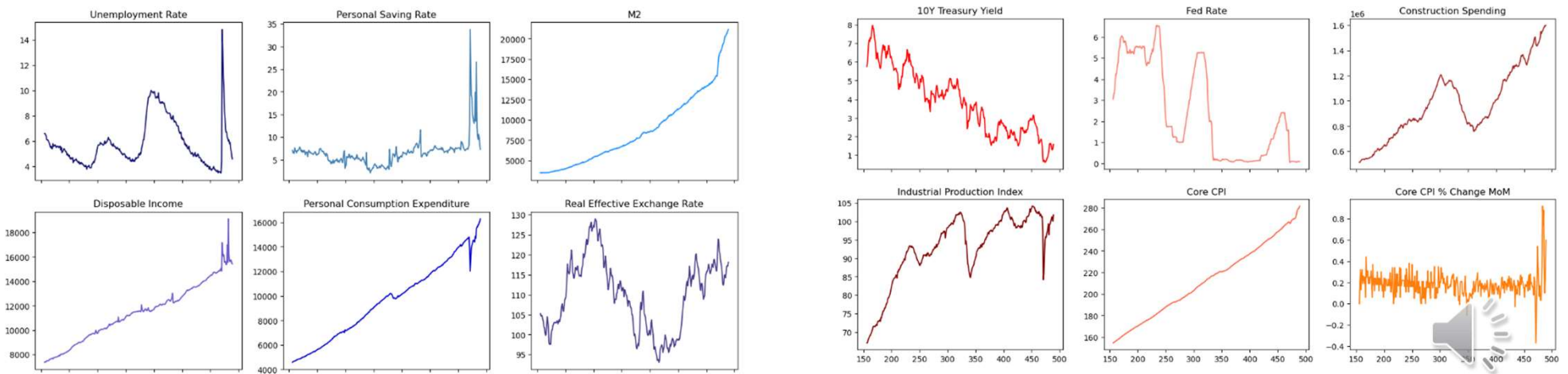


Satish Nepal



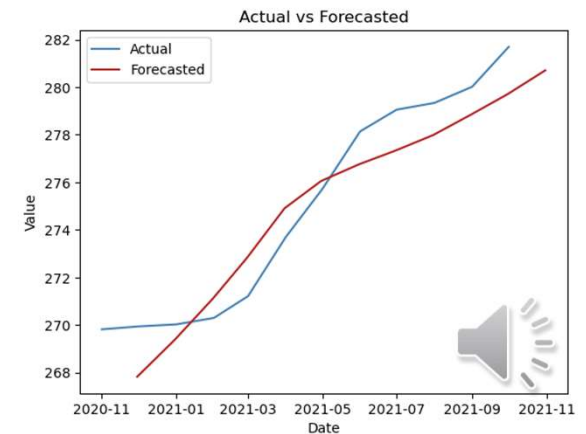
Business Scenario Overview

- How can machine-learning be leveraged to predict inflation trends?
- How can a pipeline be formed to streamline making predictions?

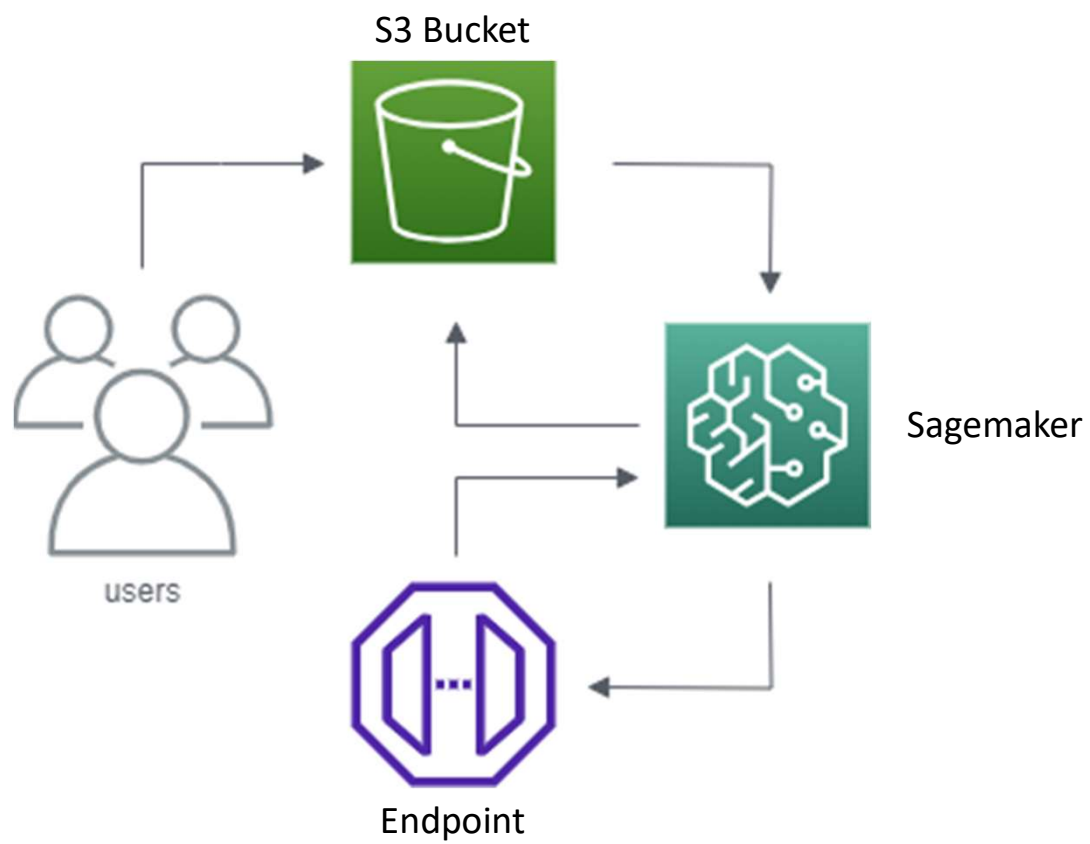


Solution Overview

- Cloud Based API model that predicts the Core Consumer Price Index (CCPI) based on various macroeconomic indicators
- AWS Sagemaker Notebooks for each individual task
 - Data Ingestion and Storage (s3)
 - Data Processing (Tensorflow)
 - Data Consumption (Endpoint)



Architecture Diagram of the Solution



Lessons Learned

- Simplify the data processing to make data for predictions easier to format
- Be mindful of archive structure of the model files when deploying
- Create the pipeline to be flexible for expansion
- Overestimate the numerous issues you are bound to face





Demonstration

[GitHub Repository](#)



Demonstration

[Amazon S3](#) > [Buckets](#) > dsci6007-final-project

dsci6007-final-project [Info](#)

[Objects](#) | [Properties](#) | [Permissions](#) | [Metrics](#) | [Management](#) | [Access Points](#)

Objects (2) [Info](#)

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Copy S3 URI

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Actions ▼

Create folder

Upload

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Find objects by prefix


< 1 > ⚙

<input type="checkbox"/>	Name ▲	Type ▼	Last modified ▼	Size ▼	Storage class ▼
<input type="checkbox"/>	data/	Folder	-	-	-
<input type="checkbox"/>	model/	Folder	-	-	-

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Demonstration

 Open JupyterLab Quit Logout

Files Running Clusters Conda SageMaker Examples

Select items to perform actions on them. Upload New Refresh

<input type="checkbox"/> 0	/	Name	Last Modified	File size
<input type="checkbox"/>	model		9 minutes ago	
<input type="checkbox"/>	 DataToS3.ipynb		2 hours ago	2.19 kB
<input type="checkbox"/>	 ModelCreation.ipynb		9 minutes ago	915 kB
<input type="checkbox"/>	 ModelDeployment_Invocation.ipynb		2 hours ago	4.74 kB
<input type="checkbox"/>	 inflation_monthly.csv		11 minutes ago	43.5 kB
<input type="checkbox"/>	 input_data.npy		9 minutes ago	896 B
<input type="checkbox"/>	 model.tar.gz		2 hours ago	349 kB



Demonstration

Amazon SageMaker > Endpoints

Endpoints

Q Search endpoints

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Update endpoint

Actions ▾

Create endpoint

	Name ▾	ARN ▾	Creation time ▾	Status ▾	Last updated ▾
<input type="radio"/>	tensorflow-inference-2024-04-23-07-45-56-225	arn:aws:sagemaker:us-east-1:730335370584:endpoint/tensorflow-inference-2024-04-23-07-45-56-225	4/23/2024, 3:45:56 AM	 InService	4/23/2024, 3:48:16 AM





Thank you!

